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ABSTRACT

Excellence is required in academic and vocational education to meet the challenges of an information age. There can no longer be divisiveness between the academic and vocational fields; cooperation is needed so students can see the connections between what they learn and what they will need to do on the job. The report issued by the National Commission on Excellence in Education, "A Nation at Risk," made five recommendations. The first recommendation was to require four years of English, three years of mathematics, science, and social studies, and one-half years of computer science in secondary education. These requirements do not preclude vocational courses; rather, the "new basics" are complemented by vocational education. The second recommendation urges schools and colleges to adopt more rigorous and measurable standards and higher expectations for academic performance and student conduct. High academic standards and assessment procedures must also apply to vocational education. The third recommendation is for better use of school time, whether longer days, longer years, or better use of time during the day. Additional school time would allow students to explore vocational courses and determine their occupational goals. The fourth recommendation of the report suggests higher pay and more evaluation of teachers. The Commission's endorsement of an 11-month teacher contract is consistent with vocational education's longstanding support for extended year contracts. The last recommendation of "A Nation at Risk" deals with questions of responsibility, funding allocations, and funding responsibility. The report says that educators as well as society at large will have to address these questions if excellence in education is to be attained. (Questions and answers regarding the Commission's study, particularly as it affected vocational education, are also contained in this document.) (KC)

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Vocational Education in an Information Age: Society at Risk?

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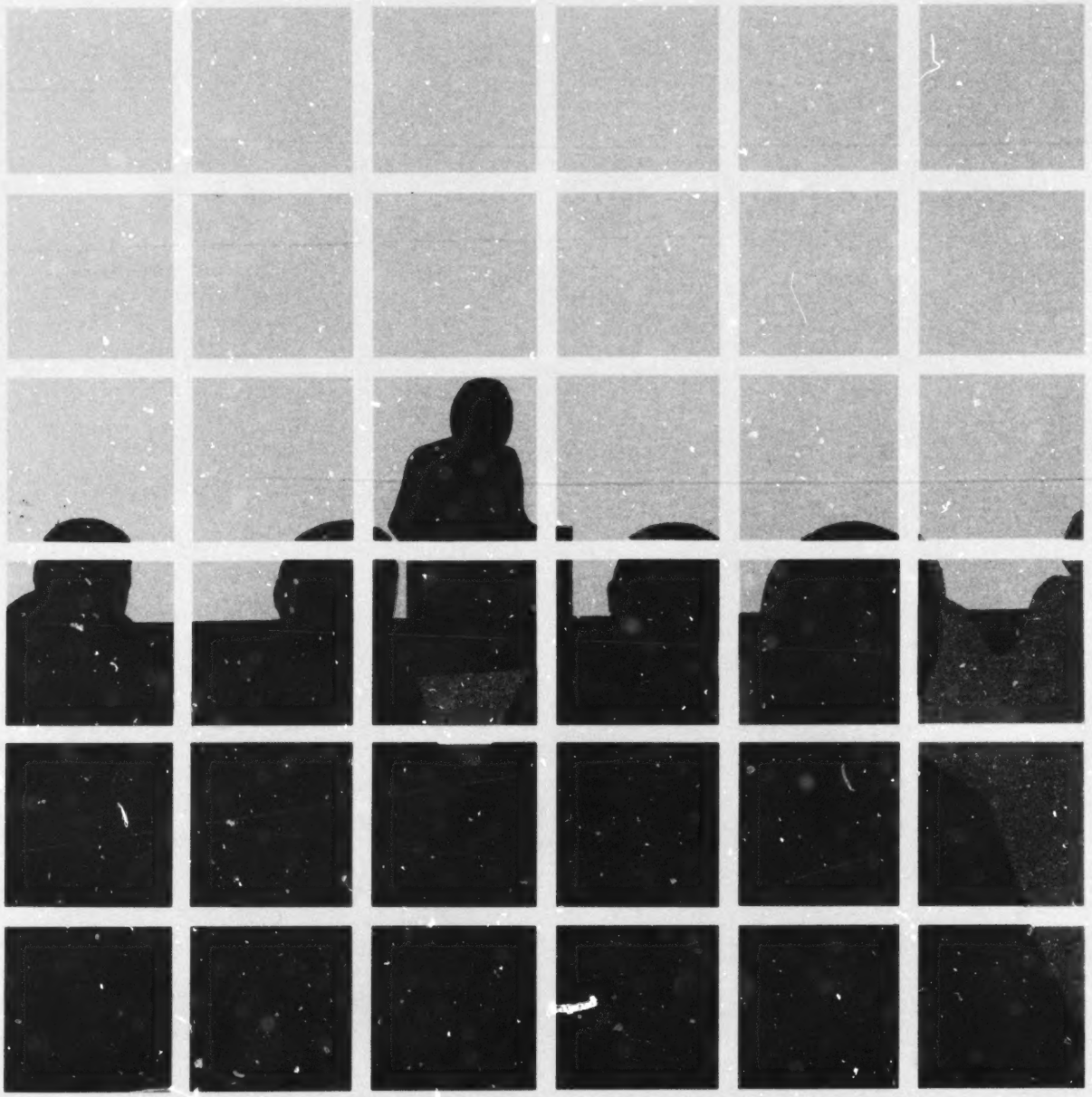

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VOCATIONAL EDUCATION IN AN INFORMATION AGE: SOCIETY AT RISK?

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1984

FOREWORD

We are honored to share with you this occasional paper entitled "Vocational Education in an Information Age: Society at Risk" by Anne Campbell, former Commissioner of Public Instruction in Nebraska and more recently a member of Secretary Beli's National Commission on Excellence in Education.

Ms. Campbell has a rich and distinguished career in educational administration. Her experience includes 2 1/2 years as Administrative Assistant for Governmental Services for Lincoln Public Schools. Later she served as the Director of Public Affairs for the University of Nebraska system, and subsequently, she was appointed Commissioner for Public Instruction by the Nebraska State Board of Education, a position she held for 8 years.

Ms. Campbell was born and raised on a ranch in Alamosa, Colorado. She received her bachelor's degree from the University of Northern Colorado and her master of science from Wayne State College. She is Honorary American Farmer and a former President of the Association of Chief State School Officers and the American Association of University Women.

Anne's remarks are especially timely in light of the Commission's recently released report entitled *A Nation at Risk*. She is an individual who understands education. The insight, widsom, and experience that she brought to bear on the Commission's deliberations are strongly reflected in this paper. I am pleased to present Anne Campbell's expert insights and comments on "Vocational Education in an Information Age: Society at Risk?"

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

VOCATIONAL EDUCATION IN AN INFORMATION AGE: SOCIETY AT RISK?

The *Christian Science Monitor* (Foell 1983), in a series of articles on the present education debate, began by saying

> if American voters suddenly fancied that in some fundamental sense they are back in the classroom, they're right. Polls show education emerging as a key issue in the coming presidential election, right alongside unemployment, protecting American jobs from overseas competition, the interest rates, and foreign policy. Americans are alert to the need to rethink the nation's educational priorities; but this needs to be done in an intelligent, comprehensive way that seeks out the broadest possible solutions geared toward unifying society, and actually promoting the educational changes that are needed. (p. 24)

Most persons involved with vocational education believe that vocational education complements the new basics, is an integral part of the new basics, and is very important—particularly to the 48 percent or so of high school graduates who do not go on to postsecondary education. Vocational courses help prepare a student to be a productive part of the economy, which is certainly a desirable individual and collective goal. At the same time, the issue of educational excellence involves ensuring that young people gain the intellectual and social skills necessary for an increasingly high-technology, computerized information society. Therefore, it makes good sense to develop individual competence to the utmost potential of each student through higher academic standards.

High academic standards must also apply to vocational education. The educational enterprise cannot afford internal bickering that divides or splinters the common goals of schooling to live a satisfying, productive life and to earn a living. The situation today does not call for one or the other—academic or vocational education—but what expectations and standards, commonalities and assimilations, and what sharing of content is possible.

As curricula are developed in the academic disciplines and in the fields of vocational education, the teachers in a given school system should sit down and talk together. Likewise, at the teacher training level in the universities and colleges, experts in the disciplines and experts in the fields of vocational education should jointly discuss the interrelationships among the courses that high school students take. For example, curriculum developers and instructors of physics, chemistry, and mathematics should communicate and coordinate with those in the areas of agronomy, agriculture, biochemistry, and agricultural engineering; teacher education professors and agricultural, business, and industrial education professors should join them, as well as communicating among themselves. Surely a background in physics has application to vocational agriculture, or a background in chemistry can relate to vocational agriculture.

Young people need to make connections among the things they learn and the world in which they live. Some do it with little or no direction; others need assistance. These connections should include the application of physics, chemistry, and mathematics concepts to agricultural education,

to industrial education, and to business or distributive education. Many of these concepts are also appropriate for home economics. Certainly, writing and reading skills cross all subjects and fields. Spelling proficiency may even be helpful, despite the new spelling capabilities of word processors.

During a seminar of the National Commission for Excellence in Education, corporate personnel officers stressed the importance of productive workers having flexibility and adaptability, the ability to work in groups, communication skills (including reading, writing, spelling, speaking, listening, and the language of numbers), and employability skills (including punctuality and a positive attitude about a day's work for a day's pay). If these were translated into skills or attitudes needed for education, they would include a day's work in school for higher achievement, meeting deadlines, and other skills as applicable for work in the classroom as they are in the workplace.

Nearly 3 years ago, Bill Pierce, the executive director of the Council for Chief State School Officers, said that vocational education programming and curricula at the secondary level will undoubtedly need to change. Indeed, vocational education should be a part of the larger context, both as it relates to the National work force and economic needs and to the high school curricula. Likewise, academic education must become a part of the larger context as it relates to advanced academic work, to social and economic needs, and to the high school curricula.

Every generation has surpassed its parents in educational literacy and economic attainment except this one. Today, as we all strive for excellence in education throughout the system, our schools and colleges must become committed to achieving excellence. As *A Nation at Risk* (The National Commission on Excellence in Education 1983) states:

> Excellence should mean several related things. At the level of the individual learner, it should mean performing at the upper boundary of individual ability in ways that test and push back personal limits. (p. 12)

Further, in schools and in the workplace, excellence should mean that a school or college

> sets high expectations and goals for all learners and then tries in every way possible to help students reach them. Excellence will characterize a society that adopts these policies, for it will then be prepared through the education and skill of its people to respond to the challenge of a rapidly changing world. (Ibid., p. 12)

At a Commission hearing, it was stated that about half of all the people employed in the United States today are in jobs related to knowledge and information generation, transmission, storage, retrieval, and use. A new economic and employment base has evolved based on information rather than on the physical production of goods. It has further been suggested that sophisticated hardware will decrease the complexity of many jobs in terms of the need for manipulative skills. However, several trends indicate that technology will place greater demands on the cognitive skills of workers. The responsibilities of workers will increase, whereas the manipulation of the products will decrease. In fact, to deal with the responsibilities and to make the sound decisions involved in their expanded work roles, most workers will need an understanding of the technology that they are using and a general knowledge of the complete system of which they are a part. Therefore, education's function cannot be solely one of training auto mechanics, assembly line workers, farmhands, technicians, and entry-level managerial and sales help. Education must also develop the individual's critical sense, appreciation of history and culture, knowledge of government, and sensitivity to others.

In our society, the ability to participate productively in the economy is an important part of living a satisfying life. Moreover, our society expects that, in return for its investment in its members'

education, those members will be able to participate meaningfully in our economy. Many of us are firmly committed to the notion that education is essential to the well-being of both the individual and the Nation.

Nevertheless, there are some disturbing indications of problems in the relationship between education and the world of work. Businessmen and women as well as recruiters for the armed services complain about the quality of high school graduates who come to them seeking employment. Dropout rates in the high school continue to be substantial, averaging approximately 23 percent nationally. Unemployment among young Americans is frequently twice the National average, and may run as high as 45 percent among poor minority urban youths. Increasingly, we hear of college graduates who are unable to find employment and are forced to take virtually any job available. It is not clear that the kind of vocational and technical training available at the secondary and post-secondary levels is adequate to the kinds of job opportunities available in workplaces that are increasingly automated and dominated by technology.

Problems such as these concern all of us for a number of reasons, but perhaps they can be summed up in one sentence: Statistics on unemployment, underemployment, and lost productivity represent not only financial anguish and personal pain for those affected, but they also represent lost productivity and economic stagnation in a society that tolerates them. Unless we begin to focus upon these issues today, they are likely to get worse tomorrow. We have crossed the threshold into an information and technologial explosion that will profoundly affect the way Americans live, eat, shop, bank, work, and use their leisure time. Experts estimate that new technology, including microcomputers, telecommunications, and information processors, will affect virtually everyone, young and old, rural and urban, male and female, working and retired. These technologies will affect our Nation's domestic and international policies, our economic and physical security, and they will surely affect us in that very important area of every adult's life, the workplace. Policymakers, instructors, and all others involved in education must think about their own responsibilities to the present generation in order to do their best to prepare people for this new world.

Does the first recommendation of *A Nation at Risk*—to require 4 years of English, 3 years of mathematics, 3 years of science, 3 years of social studies, and 1/2 year of computer science in secondary education (the "new basics")—preclude vocational courses for students contemplating either work or college? Certainly not. Educators must avoid bureaucratically entrenched attitudes about education. The majority of American society believes that a curriculum providing for a degree of choice will enable students to explore areas of study that encourage them to develop and achieve their optimum potential.

The first *A Nation at Risk* recommendation also says that high school curricula should provide students with programs requiring rigorous effort in subjects that advance students' personal, educational, and occupational goals, such as the fine and performing arts and vocational education. These areas complement the new basics and they should demand the same level of performance as the basics.

The second recommendation of *A Nation at Risk* addresses standards and expectations. Schools, colleges, and universities are urged to adopt more rigorous and measurable standards and higher expectations for academic performance and student conduct. One can, without too much dissent, accept this recommendation across the board. Performance standards and measures to determine these levels according to effort and ability are used by every teacher, instructor, or professor.

The National Commission for Excellence in Education also discussed the differences between requirements and standards. Requirements mean the accumulation of courses, whereas standards are performance expectations. The "proof of the pudding" is in the testing of achievement. So the second recommendation supports raising the requirements for 4-year universities and colleges. This should not be taken as negating a similar need in 2-year institutions. For most of the vocational and technical fields of the future, requirements in mathematics, science, and other fields will be prerequisites for successful training. As one farm worker recently said to me, "You know, if somebody would have just told me that you really needed the reasoning of calculus and the understanding of calculus to calculate the amount of hay in a haystack, maybe I wouldn't have had to learn it the hard way."

The role of testing will continue to be one of concern and controversy. Many feel that we should switch our assessment procedures to the German system or to the French system, in which the educational system selects students into tracks so that they have one choice. To rely on a test for furtherance of interest or career goals is folly. Teachers need to assess achievement, certify student credentials, identify the need for remedial intervention, and identify the ability and opportunity for advanced or accelerated work. Standardized testing for vocational education may need revisions and may be entirely different from what is needed in other areas, but there will be commonalities. Of course, other diagnostic procedures are essential to assist teachers and students in evaluating student progress.

One of the greatest misunderstandings of the assessment process is the acceptance by the public that all students will not perform at the top 10th percentile. Ninety percent of them will not.

The second recommendation also concerns textbooks and the effect of statewide adoptions and calls upon scientists, scholars, and members of professional societies to collaborate with master teachers to help the schools to ensure more rigorous content. It also recognizes that funds need to be made available to support both text and materials development in the thin market areas, so that content in any subject or field may be geared to the needs of all students.

Time is the topic of *A Nation at Risk's* third recommendation, and is a theme with which vocational educators are familiar. In order to make provisions for the diversity of student needs and allow them to explore areas of study in a reasonable scheduling format, a 7-hour school day is not out of line. Deciding what the purpose of schooling is should affect our setting of priorities. Have we really examined, in light of today's demands, whether every subject or field should take 40- to 50-minute periods and whether or not the Carnegie Unit is really the true measure of every subject? The report recommends more effective use of the school day, a longer school day, or a lengthened school year.

Classroom management is an important collection of pedagogical skills in which improvements are needed. Discipline remains a problem for teachers in some schools. Perhaps effective schools research will aid us in relieving some of the burden on teachers.

The report's recommendation on teaching has caused some controversy. The word *merit* is not mentioned in the report. Rather, the report urges school boards, administrators, and teachers to develop career ladders that distinguish between beginning teachers, experienced teachers, and master teachers. The education professions ought to get about doing this in order to remove that particular thrust from the public arena, because it is education's business and educators' expertise that qualify them to make these decisions rather than having them laid upon the profession from the outside.

Incidentally, three States (Florida, Texas, and California) have already passed legislation to put merit pay into the system in the form of State aid. Florida's will go into effect during the 1985-86 school year. The legislation requires the development of the merit criteria by January 1984.

Salaries for teachers are not, by any stretch of the imagination, what they ought to be, and many teachers fear that the master teachers' wages will come at the expense of the already undercompensated beginning and experienced teachers. Salaries should be professionally competitive, market sensitive, and performance based.

Evaluation systems that include peer review should govern salary, promotion, tenure, and retention decisions. Colleges and universities that prepare teachers should be held accountable for their graduates rather than having the State mandate certification examinations, which tend to be minimum competency based and to set lower standards than may be desirable.

The recommendation that school boards should adopt an 11-month contract for teachers would seem to follow vocational education's long-standing support for extended-year contracts. In fact and in practice, teachers should become full-time professionals. Time is needed to develop curricula, projects, professional skills, and programs for students with special needs. In addition, the 11-month contract would provide a more adequate level of teacher compensation. Some people say, "Teachers get 3 months of vacation." The public is only willing to pay $25,000 or $30,000 if a teacher works year round. This is the American work ethic.

Many States have provided ways in their certification procedures to utilize nonschool personnel resources in areas of teacher shortages. Very few people can walk into the high school classroom and teach, but with appropriate additional preparation and training (e.g., maybe 9 to 12 hours of education and curriculum planning, pedagogical methods, and psychology of student learning and development), many persons have come into the teaching force not only on a temporary basis but on a permanent one.

Few industrial engineers can come out of a corporation, step into a high school physics class, and teach physics. Most would be unable to teach in the industrial education field without some help in learning how to deal, day after day, with youngsters who may be fine students one day and the next day, devils.

The fifth and last *A Nation at Risk* recommendation has garnered as much or more attention as the other recommendations that deal with the substance of schooling, because it addresses leadership and fiscal support; that is, it deals with questions of responsibility, funding allocations, and funding responsibility.

Although superintendents and principals play key roles in developing school and community support for the reforms proposed, school boards, parents, citizens, and public officials also must help provide the support systems in terms of leadership and money. Yet, the public must be reminded that educators, too, are citizens who contribute not only to the well-being of the community, but also to its economy. Educators pay taxes for the privilege of working for themselves.

States also have a responsibility. In many States, local citizens take the lead for reforms in schooling within state-directed minimum program and standard parameters that local schools can proceed to meet or exceed. Other States directly mandate schooling reforms. Each State has a compelling interest in the education of its citizens, but the movements for change must spring from grass roots activism.

Does the Federal Government have a responsibility in both leadership and fiscal support? Yes, indeed. It should help to meet the needs of key groups of students, such as the gifted and talented, the socioeconomically disadvantaged, minority and language minority students, and the handicapped. These groups include both valuable National resources and the Nation's youths that are the most at risk.

The Federal Government's role includes several functions of National consequence that States and localities alone are unlikely or unable to meet. Among them are protecting constitutional and civil rights for students and school personnel; collecting data, statistics, and information about education generally; supporting curriculum improvement and research on teaching, learning, and the management of schools; supporting teacher training in areas of critical shortage or key national needs; and providing student financial assistance, research, and graduate training.

The Federal Government has a primary responsibility to identify the key areas of National interest in education. It should also help fund and support efforts to protect and promote that interest. Included in that National interest is funding for vocational education. It must also provide the National leadership to ensure that the Nation's public and private resources address the issues discussed in *A Nation at Risk*.

The National Commission calls upon all citizens to provide the financial support necessary to accomplish the proposed reforms. Excellence costs, but in the long run, mediocrity and ignorance cost far more.

That we have compromised our commitment to high expectations and disciplined efforts to attain them is, upon reflection, hardly surprising, given the multitude of conflicting demands we have placed on our Nation's schools and colleges. They are routinely called upon to provide solutions to personal, social, and political problems that the home, other institutions, and the community either will not or cannot resolve. Such demands on our schools and colleges exact an educational cost as well as a financial one. Our commitment—and part of what is at risk—is the promise first made in this Nation that all citizens, regardless of race, or gender, or class, or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost.

The Commission does not believe that a public commitment to excellence and educational reform must be made at the expense of a strong public commitment to the equitable treatment of our diverse population. The twin goals of equity and high-quality schooling have a profound and practical meaning for our economy and for our society, and we must not permit one to yield to the other, either in principle or in practice.

When the National Commission planned its work, it did not set out to find scapegoats, though the public schools, administrators, and teachers have taken more than their share of the blame. Schools are the reflection of society, and society is every one of us. Responsibility for excellence in our schools, colleges, and universities should be placed where it belongs—certainly on administrators, teachers, and boards of education, but also on students themselves, parents, colleges, and universities; on local, State, and Federal officials; and on agricultural and industrial business and labor councils.

The polls show that our citizens are steadfast in their belief that education is a major foundation for the future strength of this country. Education undergirds prosperity, security, and stability in our cities, villages, and countryside.

The challenge to all of us is that we must work together. We cannot allow narrow special interests or political agendas to deter our resolve to focus on the future—the children and youth of this Nation. Our belief in the importance of education and the manner in which we use our present opportunities to attend to excellence in education will only matter if we care enough to do what is required. As Woodrow Wilson said, "We cannot be separated in interests or divided in purpose."

QUESTIONS AND ANSWERS

Anne Campbell

Question: What other recommendations that were not included in *A Nation at Risk* were discussed by the National Commission? For example, what about high technology? There are probably other areas that should also have been covered, but were not.

We did discuss that particular area, but, as you know, it is changing so rapidly. For example, I read an article in the *Wall Street Journal* today that talked about difficulties with home computers and with how we use computers in education. We really have not come to the place where we feel comfortable to make any kind of a specific recommendations, except to encourage educators to look at content and see how high technology can relieve some of the teaching load. For instance, why can't microcomputers and other technological means be used in English classes where a great deal of writing is done? In fact, some of the research I've seen shows that good things are happening when youngsters use computers in their classwork because they can see the content material as it comes on the screen, which sets off a different thinking process than if they put it down on paper.

As for recommendations in other areas, the Commission's report didn't talk about physical education or extracurricular activities, and yet I think those are probably the most crucial issues in any local discussion about the purposes of education and what we should leave in and take out. What are the best proportions of extracurricular activities, or of academic and vocational learning activities? What's most important?

Back in my day, people thought that too much basketball would stunt your growth and was hard on girls; even we girls who played competitive athletics practiced only about 1 1/2-2 hours at a time. But if you go to a practice today, you'll see that both girls and boys practice 2-3 hours—mostly 3 hours. We may need to work out a better balance of time, again, between the subjects and extracurricular activities.

That's not to say that extracurricular activities aren't important, because education takes place under many different guises. For example, I do think that, perhaps in vocational education, the clubs may have to begin to examine how their outside activities fit in with what they teach, and whether or not time can be constrained. If you take a look at how student time is used in small schools, you'll find the same students in everything. They belong to all the clubs and they are into sports, drama, and the yearbook. Many of them also do well in their schoolwork, but that may be in spite of the extracurricular activities and not because of them. However, not all youngsters can do that. So when we look at time on task, we must consider those kinds of details.

The National Commission members talked about these issues, but we didn't make specific recommendations in the report because these are areas where the decisions should be made locally. They shouldn't be a National policy.

Question: How are we going to know when we've achieved excellence in education? What are the indicators?

I think that the standards will have to be set in every field for every subject. Excellence is an ideal for which to strive but that probably is never really gained. Educators have been arguing since about 1955 on what excellence is. So how do we decide what our expectations should be and how high we should set our sights for what students can accomplish?

Statistics show that we do not expect as much from 90 percent of our students as we do from the other 10 percent of the students who can hold their own anywhere in the world. Something that still bothers me in *A Nation at Risk* is the way it makes some of its comparisons, because it's a little like comparing apples and oranges. For example, the Japanese system is beginning to come close to ours and has most of its students in classrooms, but if you read the literature today, you'll find out that they are also beginning to have trouble.

It will not be easy, but I think that excellence has to be set at the highest levels of expectation. Good classroom teachers have been doing this for years. Of course, we all recognize that there are things that everybody needs to know—minimum competencies, if you will. There will always be those who reach beyond that, and there will always be those who have a hard time getting to that minimum level. But you can put all of them in the same class and you can have them help one another so that they are striving to do their best. And that really is what excellence is—doing the very best that you can do.

Question: Do you think the new emphasis on basics will allow students to start learning concepts earlier than before? If yes, what do we do about those less-mature young people who aren't ready to learn the concepts?

I think that there's no question that educators are going to have to teach concepts at different levels. Students should be helped and allowed to mature at their own rate. One of the things that concerns me is our grade system. I'm not sure that we really know what first grade is. It's a kind of average. Some students exceed their present grade level and other students don't come up to that level of ability, and yet we've used the process in schools in spite of its confinements.

I think that will also happen with the new basics. For instance, you know and I know that not all youngsters are going to be able to handle calculus and trigonometry, but they ought to have some algebra background and geometry background, because they're going to need it in whatever work they do. This doesn't necessarily mean that students have to decide about their careers earlier. But what's happening today is that, in spite of our counseling and in spite of anything we try to do, many students choose not to take the courses they will need later because they are not thinking ahead.

I talked to a group of high school seniors this spring. One of them wanted to go into engineering technology at a technical school. But he hadn't taken algebra. He said, "I didn't see any reason to take algebra. You know, what's that do for you? It's just a bunch of numbers that you put in an equation. How's that going to help?" But he found out when he took the entry test that he did need to know algebra because it was a reasoning process. Many students are not going to make the right decisions about their high school course work.

Question: Recognizing that individuals are all different, one recommendation of the National Commission was either to extend the school year or give more concentration to specific subject areas. Yet some people believe that excellence is tied to the size of the class alone. How do we achieve excellence and still allow for individual differences?

Back when there were fewer high school students, the classes were larger because students only had the choice of college prep, with maybe a little bit of vocational education on the side. Because of the serious attitudes of the students, we found that many of them could succeed. I personally believe that class size has a great deal to do with educational achievement. If the size of the class bothers the teacher, it will have a psychological effect on the way that teacher teaches. Teachers won't be as good in the classroom if they really cannot control the situation. However, some of the classroom management research also shows that the teachers who have the best classroom management and the most effective outcomes—the two tied together—frequently do not use so much individualized instruction and can work with a larger group. I think that says something different. We need more research on class size.

When the National Commission talked about extending the school day, it was because we believe that if schools go to the 7-hour day, this would allow for the choices that students need to have. It is possible that better use of time in the existing school day can be made. Every school needs to examine students' time on task. I am most concerned about use of school time at the junior high or the middle school level, because that's when students really do explore. Yet, our curricula are not set to allow that, or even to lay the base for vocational education, and I think we need this.

Question: Would you please tell us about the qualifications of each member appointed to the Commission?

I would like to introduce you to the other members of the Commission. I think you receive an impression if you understand the personalities that are involved.

The chairperson of the National Commission is David Gardner. He now is president of the University of California system. At the time we started the work in August 1981, he was president of the University of Utah. He is a marvelous director. There were times in our deliberations when we thought agreement was out of reach. He is a master in the use of the English language. He is a master at handling differences of opinions and different philosophies, and at getting a consensus from a group. Everyone is satisfied to a degree, and I say that's the democratic process. The ability to pull those diversities together is an amazing art, and David Gardner is a person who does it.

Yvonne Larsen was the vice-chairperson. Yvonne is the immediate past president of the San Diego Board of Education in San Diego, California. She is well versed in public education and served in a school system where the Hispanic influence is great. It is a system where many of the so-called illegal aliens move into the system and become eligible for educational opportunities. She is also active in Republican politics and at times would be torn between the Federal administration's agenda and what she knew was needed in the public schools. She did a great deal to balance our deliberations.

William O. Baker is chairman of the board (retired) for Bell Laboratories in New Jersey. He is a person concerned about who will be the technicians as well as the researchers in the Bell Labs. In order to meet rigorous high-technology competition, the importance of a background in mathematics, science, technology, and communication skills in high school was of particular interest to him.

Emeral Crosby, who is black, is principal of Northern High School in Detroit, Michigan. If you've ever been on the main street of Detroit, you know the high school is located there. A large proportion of Mr. Crosby's student body is black. He's done a tremendous job in the years he's been there, with the help of his own administration in the Detroit Public Schools plus the help of business and industry. His own enthusiasm, belief in standards, and willingness to get out in the community to visit the homes of the students have been a great influence on the level of achievement that has been accomplished. Through his efforts, a vast amount of work, commitment, and dedication have been given to his school.

Charles A. Foster, Jr., is the immediate past president of the Foundation for Teaching Economics in San Francisco, California. He is a petroleum engineer who worked for Shell Oil Company. He also is active in the Sequoia Foundation, which supports conservation agendas, and he consequently represented those points of view.

Norman Francis is also black, and is president of Xavier University, a private institution in New Orleans, Louisiana. He is extremely supportive of the public school system because he hopes that black youngsters' opportunities and upward mobility, both socially and economically, will come through the public schools and the standards they set for all students.

A. Bartlett Giamatti is president of Yale University. I always have to tell this story about him, which is that he only showed up at one of the Commission meetings. I'm sure he was often in contact with the staff, however. He is a controversial, outspoken person who had a great deal to do with the format of the report. He's very interesting; but as I say, I've met him only once.

Shirley Gordon is president of High Line Community College in Midway, Washington, a community college that specializes in high-technology technician training.

Robert Haderlein is immediate past president of the National School Boards Association and is from Girard, Kansas, a town whose population is about 2,400. He represents education in that vast area in rural America, and is a person dedicated to quality education who has put his own political future (serving on the school board) on the line many times to organize and reorganize intermediate agencies to supplement the work that needs to be done to provide quality education in small schools.

Gerald Holton is the Mallinckrodt Professor of Physics and Professor of the History of Science at Harvard University. He is a product of the German system of education, and strongly defended that system with its policy of testing students to guide them into tracks. He is an extremely intelligent man, who, when we started to do the drafts of the report in December 1982, was not happy with the first draft, so wrote one himself. And we weren't happy with that one either! The report actually went to press after the seventh draft.

Annette Kirk is the head of Kirk Associates from Mecosta, Michigan. Many of you may have read columns in the newspapers by her husband, Russell Kirk. Ms. Kirk is ultraconservative and represented the Moral Majority point of view on the Commission. That's fine. It's only when you begin to argue about issues and finally come to consensus that you really learn about reality.

Margaret Marston is a member of the Virginia State Board of Education and was just reappointed to that position. The Reverend Jerry Falwell often attends State board meetings. You probably would recognize her mother's name more than you would recognize her name; her mother is Margaret Sanger. If you've worked with sex education or Planned Parenthood, you'll know that that point of view came into our deliberations.

Albert Quie, former Governor of Minnesota, was also for many years in the United States House of Representatives. He participated in the development of the Elementary and Secondary Education Act and in many of the War on Poverty bills. He is well known as a generalist in education.

Francisco Sanchez, Jr., is the superintendent of schools in Albuquerque, New Mexico. This is a 75,000-pupil district in which the majority of the students are Hispanics and Native American Indians.

Glenn Seaborg is professor of chemistry and Nobelist rom the University of California at Berkeley. He is world renowned, is a prolific writer, and now is director of the Lawrence Center of Science at the university.

Jay Sommer was the National Teacher of the Year in 1981-82. Jay is a Jewish refugee from Czechoslovakia. He and his family escaped to Austria and came to the United States. He received his education in the New York City Public Schools and Brooklyn College, a public higher education institution. He speaks 10 languages and teaches 5 of them in New Rochelle High School in New York. Because he isn't busy enough, he now has two adult education classes in oriental languages, because the people in his community, some of his students, and he himself wanted to learn oriental languages.

Richard Wallace is principal of Lutheran High School East in Cleveland Heights, Ohio, a Missouri Synod Lutheran high school. He, too, is a strong supporter of public education because he said it keeps his own school on its toes.

In many ways, the Commission was a microcosm of those who work in decision-making areas across the country and who, it is hoped, can articulate to all of the citizens of the country the importance of education and the importance of what we need to do in it. The 13 June 1983 *New Yorker* has a cartoon in which a little boy is in the principal's office, and the principal is saying to him, "It's one thing for the National Commission to comment on the quality of teaching in our schools; it's another thing, entirely, for you to stand up and call Mr. Costello a yo-yo." The Commission has stimulated many reactions.

Question: There was no more said in the report about vocational education, other than the brief section you read. I'm wondering whether the National Commission discussed vocational education, or whether it was just ignored?

The National Commission talked a great deal about vocational education and held a hearing on "Education for a Productive Role in a Productive Society." Robert Worthington, Assistant Secretary for Vocational and Adult Education, U.S. Department of Education; Vernon Broussard, National Council on Vocational Education; Gordon Dickinson, Colorado Community College and Vocational Education Board; and your own National Center executive director, Robert E. Taylor, were among those who testified. So vocational education was not ignored.

Vocational educators are educators, and they are also a significant part of the *team* that has obligations for the schooling of high school students. Vocational courses should be applications of concepts learned in general and academic courses. Educators—teachers—need to help young people make the connections that are essential for becoming productive, humane citizens.

Question: It seems that a classical education has been emphasized in this country for a long time. *A Nation at Risk* emphasized linkages and applications. Would you please tell us more about how we can address this—how we can "make the connections?"

Perhaps, as I indicated in answer to a previous question, the linkages can be made if personnel in all of the fields meet and share the concepts taught. Vocational education's contribution to the application and understanding of the overlapping principles is significant. Students can be motivated with interrelated understandings.

For example, is it true that reading, writing, spelling, speaking, listening, reasoning, logic, analysis, and problem solving are the purview only of the English or communication courses? I believe not; every course has such responsibility. Vocabulary, structure, and content emphasize subject matter that varies, but there are commonalities. It is the identification of the commonalities that should be the common purpose of all teachers in helping students become educated as whole persons. It can be done by working together.

Question: What should the Federal role be in excellence in education?

The recommendation of the Commission stated "that citizens across the nation hold educators and *elected officials* [my emphasis] responsible for providing the leadership necessary to achieve these reforms. . . ." Leadership of "elected officials" refers to all levels of government, Federal, State, and local. The President and the Congress have the responsibility to speak out, to recommend, and to legislate necessary measures to strengthen our unique, universal education system.

The recommendation continues with the statement "that citizens [should] provide the fiscal support and stability required to bring about the reforms proposed." Citizens provide fiscal support at all levels of government, Federal, State and local. The Federal Government in cooperation with the States and localities must support the needs of students who are gifted and talented, socioeconomically disadvantaged, minority and language minority, and handicapped. Vocational education is serving and will continue to serve these students who include both National resources and those youths most at risk.

There is also a Federal role in functions of National consequence that States and localities cannot meet. These were mentioned in the text of my remarks.

Finally, the Commission placed the responsibility to identify and support the National interest in education on the Federal Government. This is a time when America is being challenged by competitors in commerce, industry, science, and technological innovations. The necessity to meet the challenges requires Federal fiscal support in areas of training and retraining of teachers, support for curriculum development, and support for programs to train technicians and work force personnel. Mathematics, science, and technology teachers are in short supply, and teachers of industrial technology and other fields of vocational and technical education are also in short supply. Continued funding from the Federal level is essential to update curriculum, provide equipment, and train and retrain teachers in vocational education.

Excellence will require the commitment of the Federal, State and local governments, the communities, the educators, and the individual learners, all working together to respond to the challenges of a rapidly changing world.

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